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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/580,688 | 05/26/2006 | Ryosuke Tsuyuki | MTM-0223 | 4368 |

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| EXAMINER |
|---|
| PETTITT, JOHN F |

| ART UNIT | PAPER NUMBER |
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| 3744 | |

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| 04/15/2009 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/580,688 | TSUYUKI, RYOSUKE | |
| | Examiner | Art Unit | |
| | John F. Pettitt | 3744 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *21 January 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-13* is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

**1.** The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**2.** **Claims 1-13** are rejected under 35 U.S.C. 102(b) as being anticipated by Bartlett et al. (US 5,375,424) hereafter Bartlett.

**In regard to claims 1, 6, and 10-13**, Bartlett teaches a water regeneration method for discharging ice (column 5, lines 64) condensed in a portion (62 or 70 or space near 62 or 70) cooled by a cryogenic refrigerator (40, 44) installed in a case (20) to an outside of the case (exterior to 20), comprising: a temperature increasing step for melting the ice into water at approximately atmospheric pressure (heater 69 on or purge gas admitted - column 5, lines 5-7, 25-27); a vaporizing step for vaporizing water by performing a plurality of first roughing steps between the approximate atmospheric pressure and a first reduced pressure being less than the atmospheric pressure but higher than and yet close to a water-freezing pressure that causes the water to freeze (interpreted as performing an evacuation where gases are being evacuated and where the pressure of the space being evacuated is lower than atmospheric and higher than a first pressure, which first pressure is relatively close to the pressure water will freeze; rough pumping through valve 84; column 5, line 40-45; as the pressure drops from atmospheric to a low pressure near 1000 microns (133 Pa) - a plurality of times - column 5, lines 25-35, there will be a plurality of evacuations at a pressure that is both

below atmospheric and above a pressure at which freezing can occur - column 5, lines 66-67; for example there will be a plurality of evacuations at pressures between near atmospheric and 200 Pa [for example 600, 540, 423, and so forth]; for clarity throughout this action the first pressure is 100 Pa); a water discharge step for discharging water by performing a plurality of second roughing steps between a second reduced pressure and the first reduced pressure, the second reduced pressure being less than the atmospheric pressure and greater than the first reduced pressure (as the pressure drops from atmospheric to a low pressure near 1000 microns (133 Pa) a plurality of times - column 5, lines 25-35, there will be a second plurality of evacuations below a pressure that is below atmospheric pressure and above the first pressure - column 5, lines 66-67; for example there will be a plurality of evacuations at pressures between 200 Pa and a pressure near 1000 microns (133 Pa); for clarity throughout this action the second pressure is 200 Pa); and a water vapor discharging step for discharging water vapor at a third reduced pressure being less than the first reduced pressure (pumping down below 1000 microns - step 114, column 6, lines 15-25; any of the pressures reached under 1000 microns).

**In regard to claim 2**, Bartlett teaches that each of the vaporizing step and the discharging step includes buildup determination (pressure detection determines a buildup of gases built up in system; column 5, lines 45-52).

**In regard to claim 3**, Bartlett teaches that the temperature increasing step (heater on or purge gas admitted) is a warm-up step for increasing a temperature of the portion (62 or 70 or space near 62 or 70) of the case (20) in which the ice is condensed (column 5, lines 64-65) to a melting point of the ice or higher to melt the ice (column 6,

lines 5-11).

**In regard to claim 4**, Bartlett teaches that the temperature increasing step (heater 69 on or purge gas admitted - column 5, lines 5-7, 25-27) is performed by temperature increase by purge in which a purge gas (column 5, line 29) having a higher temperature than the melting point of the ice is made to flow in the case (20) to return a pressure in the case that is kept at vacuum to an atmospheric pressure (column 6, line 9) and improve thermal conductivity with the outside of the case (column 5, lines 5-8, 25-30) and by temperature increase by a heater (heater 69).

**In regard to claim 5**, Bartlett teaches that in the vaporizing step, water is vaporized by performing rough evacuation (column 5, lines 44-48, column 6, lines 5-10) to reduce a pressure of the portion (62 or 70 or space near 62 or 70) in which the water generated from melting of the ice by the temperature increasing step (heater on or purge gas admitted) is accumulated within a range in which the temperature and the pressure of the portion are prevented from reaching a freezing point of the water (column 5, line 65 - column 6, line 4), a buildup determination for determining pressure increase by discharged moisture or a gas when the evacuation is stopped is performed (pressure is detected), and the water vaporization (rough pumping) and the buildup determination (pressure detection) are repeated until the water vanishes away (until pump is emptied - column 6, lines 5-14).

**In regard to claim 7**, Bartlett teaches that the discharging step (pump down below 1000 microns) is an evacuation step (column 6, lines 15-21) for discharging the water vapor by further reducing the pressure by the rough evacuation at a time when the water is vaporized (all liquid is vaporized) by the vaporizing step (rough pumping),

performing a buildup determination to determine the pressure increase by a gas when the evacuation is stopped (pressure detection), and repeating the discharge of the water vapor (pumping at pressures below 1000 microns) and the buildup determination (pressure detection) until the pressure increase is smaller than a value (500 microns) used for the determination (column 6, lines 15-20).

**In regard to claim 8**, Bartlett teaches that the temperature increasing step (heater 69 on or purge gas admitted) is switched to the vaporizing step at a time when a temperature of the portion (62 or 70 or space near 62 or 70) of the case (20) in which the ice is condensed reaches the melting point of the ice (interpreted as a time when ice has changed to pooled liquid - column 4, line 54 and column 6, line 10).

**In regard to claim 9**, Bartlett teaches that the vaporizing step (heater on and purge gas admitted) is switched to the evacuation step (pumping below 1000 microns) based on the buildup determination (pressure detection) using the discharged moisture or gas when the evacuation is stopped (column 6, lines 15-20 when vaporization is complete).

### *Response to Arguments*

**3.** Applicant's arguments filed 01/21/2009 have been fully considered but are moot in view of the new ground(s) of rejection as set forth above where each an every limitation is discussed in detail. It is further noted that the new grounds of rejection is based on a new interpretation of Bartlett in view of broadest reasonable interpretation of the newly amended limitations and the full scope of the claim.

## *Conclusion*

**4.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to /John Pettitt/ whose telephone number is 571-272-0771. The examiner can normally be reached on M-F 8a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on 571-272-4834 or 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John F Pettitt /
Examiner, Art Unit 3744

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art Unit 3744